

45
50

APR 21 1920

*Forty-third Annual Report of the Savilian
Professor of Astronomy to the Visitors of
the University Observatory for 1917-18.*

BOARD OF VISITORS, 1918.

THE VICE-CHANCELLOR (Herbert Edward Douglas Blakiston, D.D.,
President of Trinity).

THE SENIOR PROCTOR (Rev. F. H. Hall, M.A., Fellow of Oriel).

THE JUNIOR PROCTOR (R. R. Marett, M.A., D.Sc., Fellow of Exeter).

THE ASTRONOMER ROYAL (Sir Frank W. Dyson, M.A., LL.D., F.R.S.).

THE DIRECTOR OF THE CAMBRIDGE OBSERVATORY (Professor A. S.
Eddington, M.A., M.Sc., F.R.S.).

THE RADCLIFFE OBSERVER (A. A. Rambaut, M.A., D.Sc., F.R.S.).

SIR W. H. M. CHRISTIE, K.C.B., Hon. D.Sc., F.R.S. } Until Nov. 10,
A. E. H. LOVE, D.Sc., F.R.S., Hon. Fellow of Queen's. } 1920.

E. B. ELLIOTT, M.A., F.R.S., Fellow of Magdalen. } Until Nov. 25,
C. LEUDESORF, M.A., Fellow of Pembroke. } 1925.

Physical &
Applied Sci.
Serials

The Report here presented refers to the period from April 26, 1917, to April 25, 1918, and exhibits the state of the Observatory on the last-named day.

I. Staff.

Mr. F. A. Bellamy and his niece Miss E. F. Bellamy have continued their conscientious work entirely to my satisfaction during the year. With the approval of the Board I propose to transfer Miss Bellamy, as a provisional and possibly temporary arrangement, to the seismological service of which I undertook the direction on the death of Professor Milne in 1913. Under circumstances which I will explain to the Board, there is at present an opportunity to test the suitability of Oxford as an alternative to Shide (Isle of Wight). The whole question of the future of Seismology in England (and indeed internationally) is under discussion, and it is not intended to prejudice this discussion by the arrangements contemplated: but it will be possible, during the next year or two, to obtain information which will almost certainly be of value in that discussion as to the suitability of a University, and of Oxford in particular, as a seismological centre: the War may be said to have provided this opportunity through the necessity of marking time.

The transference of Miss Bellamy, if approved,* is not to prejudice the resumption of her position as Assistant at the conclusion of the experiment, should that be her wish. But it will for a time set free her present salary. In this connexion I propose, with the approval of the Board,* to offer a temporary appointment for one year to Dr. J. K. Fotheringham, formerly Fellow of Magdalen, who is doing excellent work in the region where Astronomy and Chronology overlap. Much of this work has been put into his capable hands either directly by me or at my instigation; but I have only recently realized how largely his time and energies have been thus drawn upon, and what I now propose is but a small recognition of his valuable help. This arrangement would be purely experimental.

The office of caretaker and mechanic, so long held by the late Mr. John Mullis, has not been filled up at present. By the kind permission of the Radcliffe Observer, arrangements were made with his gardener, J. Landon, for attending to the fire twice a day. A charwoman has been occasionally employed for cleaning.

II. Teaching.

The usual lectures and practical instruction were offered, but there was no response from students.

A number of lectures to military audiences have been given; and some others of a popular character.

From the 9th to the 26th March last the Director was in France, lecturing under the auspices of the Y.M.C.A. He was specially assigned to the New Zealand Division.

III. Research and Publications.

Volume III of the Vatican Zones ($+62^{\circ}$) was printed off in December last, and has been distributed. Father Hagen reports that there is at present no prospect of starting the printing of Volume IV.

Plate constants have been determined for the whole of zone $+58^{\circ}$, and the residuals entered in the ledgers to RA 17^h . We are informed that the measures of zone $+57^{\circ}$ are nearly complete, and will shortly be sent to us for determination of plate constants. For the two remaining Vatican Zones $+56^{\circ}$

* Approved by the Board on May 8.

and $+55^{\circ}$, Standard Co-ordinates have been computed, as announced in the last Report, but that is all. It would be a great satisfaction to see this work complete, but the pace at Rome has been slackening, owing to the War; so that it now only occupies a fraction of the time of the computer. It has been necessary to find other work for him in measuring some Santiago plates (zone -22°). The suggestion of undertaking this single zone arose from correspondence with the Director of the Santiago Observatory, who sent a number of his plates to us about a year ago. After some experiments a definite plan for this work, approved by the Astronomer Royal and the President of the Astrographic Committee (M. Baillaud, Director of the Paris Observatory), was laid before the Government Grant Committee of the Royal Society, and a grant of £100 in aid for 1918 has just been made.

The counts of stars of different magnitudes for the various zones of the Astrographic Catalogue have been continued, and the material is now so large that a definitive discussion can soon be undertaken. So far as the Galactic condensation is concerned, part of the material has been recently discussed in a definitive manner by Mr. F. H. Seares of Mount Wilson (Cal.). He has obtained figures which can be used as a good first approximation to the law of condensation: and it is satisfactory to find that the rough estimate given two years ago is thus independently confirmed. The results can now be cleared from the effects of this condensation for the elucidation of the "spiral" effect, and this work is proceeding.

The analysis of weather statistics has been continued by the help of the grant from the Government Grant Fund. The 28 rainfall records have been extended from 1905 to 1912 (where records begin to fail) with satisfactory confirmation of the prediction: and have been regrouped to test their accordance. Several temperature records and barometer records have been analysed; in particular, Mr. Bellamy analysed with minute care a long series of barometer records taken at the Radcliffe Observatory, obtaining the result that the differences between "odd" and "even" chapters are probably not of period shorter than one month. The series of Nilometer readings (641 A. D.—1450 A. D.) has also received much attention: but the conclusions of this work are not yet in final shape.

The following papers, by members of the Staff and others, have been published during the year:—

272. "Baxendell's Observations of Variable Stars. Ninth Instalment: No. 23, S. Vulpecula, and No. 24, S. Aquilae, with notes on No. 13, T. Herculis, and No. 18, R. Serpentis." Edited by H. H. Turner and Mary A. Blagg, *Mon. Not. R.A.S.*, LXXVII, p. 555 (1917, May).

273. "Seismological Investigations—Twenty-second Report for 1917." By H. H. Turner, *Brit. Assoc. Report*.

274. "The Stellar Magnitude Scales of the Astrographic Catalogue. Eleventh Note: The Cordoba Magnitudes (-25°), and the Tacubaya Magnitudes (-15°), with a further Note on the Progression of the Galactic Condensation." By H. H. Turner, *Mon. Not.*, LXXVIII, p. 54 (1917, Nov.).

275. "On the Classification of Long-period Variable Stars." By H. H. Turner, *Mon. Not.*, LXXVIII, p. 92 (1917, Dec.).

276. "On the Photographic Magnitudes determined with the Vatican Astrographic Equatorial corrections depending on distance from the plate centre." By H. H. Turner, *Mon. Not.*, LXXVIII, p. 180 (1918, Jan.).

277. "On the Barometer record at the Radcliffe Observatory, Oxford, with special reference to Professor Turner's suggested Discontinuities." By F. A. Bellamy, *Quart. Journ. Royal Met. Soc.*, XLIV, p. 91 (1918, April).

IV. Buildings and Grounds.

After the heavy snow in January, falls from the dome broke the glass roof of the lavatory. A covering of wooden trellis-work has been added as a safeguard.

V. Equipment, Library, &c.

The micrometer lent to the computer living at a distance is now in regular use for the measurement of Santiago plates, as above mentioned.

The call for waste paper at the present time has suggested the disposal of a number of duplicate and superfluous pamphlets: after selecting those of value in the second-hand market.

H. H. TURNER.

UNIVERSITY OBSERVATORY,
OXFORD,

April 26, 1918.